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77. Proposed by J. OWEN MAHONEY, B. E., M. Sc., Professor of Mathematics and Science, Cooper Training School, Carthage, Tex.; and ELMER SCHUYLER, Reading, Pa.

A and B are two inaccurate mathematicians whose chance of solving a given question correctly is 1/8 and 1/12 respectively; if they obtain the same result, and if it is 1000 to 1 against their making the same mistake, find the chance that the result is correct. [From *Hall and Knight's Algebra.*]

Solution by G. B. M. ZERR, A.M., Ph.D., Professor of Mathematics and Science, Chester High School, Chester, Pa.; COOPER D. SCHMITT, A. M., Ph. D., Professor of Mathematics, University of Tennessee, Knoxville, Tenn.; and L. C. WALKER, Instructor in Mathematics, Leland Stanford, Jr., University, Palo Alto, Cal.

The chance that A and B both get the correct result is $\frac{1}{8}\times\frac{1}{12}=\frac{1}{96}$.

The chance that both get the wrong result is $\frac{7}{8}\times\frac{11}{12}=\frac{77}{96}$.

The chance that they both get the *same* wrong result is $\frac{1}{1001}\times\frac{77}{96}=\frac{1}{13.96}=\frac{1}{1248}$.

$\therefore$ The chance that the result is correct : the chance that the result is not correct :: 13 : 1.

$\therefore$ The required chance is $\frac{13}{14}$.

Also the required chance is $(\frac{1}{96})/(\frac{1}{96}+\frac{1}{1248})=\frac{13}{14}$.

78. Proposed by CHAS. E. MYERS, Canton, O.

Two witnesses, A and B, both make the statement that an event happened in a particular way (two ways being possible). Find the probability of the truth of the statement.

Solution by G. B. M. ZERR, A. M., Ph. D., Professor of Mathematics and Science, Chester High School, Chester, Pa.

Let p, q be the chances that A, B speak the truth, respectively.

Then the chance of the truth of the statement is

$$\frac{pq}{pq+(1-p)(1-q)}=c.$$

Now $p=q=\frac{1}{2}$. $\therefore$ $c=\frac{1}{4}/[\frac{1}{4}+(1-\frac{1}{2})(1-\frac{1}{2})]=\frac{1}{4}/\frac{1}{2}=\frac{1}{2}$.

MISCELLANEOUS.

72. Proposed by E. D. ROE, Jr., A. M., Ph. D., Professor of Mathematics, Oberlin College, Oberlin, Ohio.

If a, b, and c are integers, and

$$\left\{\begin{matrix} b,\ c-b,\ c-1 \\ c-a-1 \\ c-a-1 \end{matrix}\right\}>0,$$

prove that the sum of the series,

$$1+\frac{a.b}{1.c}+\frac{a(a+b).b(b+1)}{1.2.c(c+1)}+\frac{a(a+1)(a+2).b(b+1)(b+2)}{1.2.3c(c+1)(c+2)}+\ldots\ldots$$

is equal to